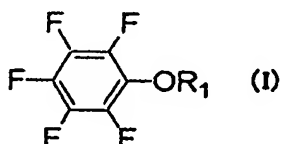


CLAIMS

1. A non-aqueous electrolytic solution comprising an electrolyte salt in a non-aqueous solvent, wherein the  
5 non-aqueous electrolytic solution further contains a pentafluorophenyloxy compound represented by the formula (I), and vinylene carbonate and/or 1,3-propanesultone:



- 10 in which R<sub>1</sub> is a substituent selected from the group consisting of an alkylcarbonyl group having 2 to 12 carbon atoms, an alkoxy carbonyl group having 2 to 12 carbon atoms, an aryloxy carbonyl group having 7 to 18 carbon atoms, and an alkanesulfonyl group having 1 to 12 carbon atoms, and at least one hydrogen atom of the substituent  
15 can be substituted with a halogen atom or an aryl group having 6 to 18 carbon atoms.

2. The non-aqueous electrolytic solution of claim 1, wherein R<sub>1</sub> in the formula (I) is an alkanesulfonyl  
20 group having 1 to 12 carbon atoms.

3. The non-aqueous electrolytic solution of claim 1, wherein R<sub>1</sub> in the formula (I) is an alkanesulfonyl group having 1 to 6 carbon atoms.

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4. The non-aqueous electrolytic solution of claim 1, wherein R<sub>1</sub> in the formula (I) is methanesulfonyl.

5. The non-aqueous electrolytic solution of claim 1, wherein the solution contains the pentafluorophenyloxy compound represented by the formula (I) in an amount of 0.01 to 10 wt.%.

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6. The non-aqueous electrolytic solution of claim 1, wherein the solution contains the pentafluorophenyloxy compound represented by the formula (I) in an amount of 0.1 to 5 wt.%.

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7. The non-aqueous electrolytic solution of claim 1, wherein the solution contains the vinylene carbonate and/or 1,3-propanesultone in an amount of 0.01 to 10 wt.%.

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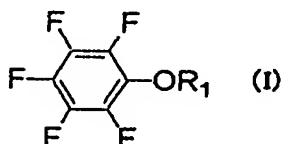
8. The non-aqueous electrolytic solution of claim 1, wherein the solution contains the vinylene carbonate and/or 1,3-propanesultone in an amount of 0.1 to 5 wt.%.

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9. The non-aqueous electrolytic solution of claim 1, wherein the solution further contains at least one compound selected from the group consisting of cyclohexylbenzene, 1-fluoro-2-cyclohexylbenzene, 1-fluoro-3-cyclohexylbenzene, 1-fluoro-4-cyclohexylbenzene, biphenyl, o-terphenyl, tert-butylbenzene, 1-fluoro-4-tert-butylbenzene, tert-pentylbenzene, a partially hydrogenated o-terphenyl, a partially hydrogenated m-terphenyl and a partially hydrogenated p-terphenyl.

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10. A lithium secondary battery comprising a positive electrode, a negative electrode and a non-aqueous electrolytic solution comprising an electrolyte salt in a non-aqueous solvent, wherein the non-aqueous electrolytic solution further contains a pentafluorophenyloxy compound represented by the formula (I), and vinylene carbonate and/or 1,3-propanesultone:



- in which R<sub>1</sub> is a substituent selected from the group consisting of an alkylcarbonyl group having 2 to 12 carbon atoms, an alkoxy carbonyl group having 2 to 12 carbon atoms, an aryloxy carbonyl group having 7 to 18 carbon atoms, and an alkanesulfonyl group having 1 to 12 carbon atoms, and at least one hydrogen atom of the substituent can be substituted with a halogen atom or an aryl group having 6 to 18 carbon atoms.